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ABSTRACT

British psychologists have presented educational psychology as an academic discipline and have distanced themselves from practical teaching. Most have disavowed any particular knowledge about teaching and suggested that teachers themselves should discover the way academic concepts are applied to teaching. As students of human learning, educational psychologists should be the ones to explore the relationships between human learning and attempts to influence it, which is the aim of teaching. They should work with teachers in symbiotic systemic research on teaching, attempting to relate practical teaching to principles of human learning. A long-standing program of teacher training that has adopted this approach is described, and a proposal is made for involving British psychologists in general in teacher training. (Author/JD)

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RITUAL AND REALITY IN TEACHING AND TEACHER EDUCATION

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Eight Vernon-Wall Lecture to the Education Section of the British Psychological Society

ABSTRACT

Ritual and reality in teaching and teacher education

The recent history of the involvement of British psychologists in teacher education is examined. In attempting to establish their credentials in academe they have presented education psychology as an academic discipline and have distanced themselves from practical teaching. Most educational psychologists have disavowed any particular knowledge about teaching and suggested that teachers, themselves, should discover the way academic concepts are applied to teaching.

This neglect of teaching by educational psychologists is criticised as a dereliction of duty and as politically inept. Psychologists, as students of human learning, should be, par excellence, the people to explore the relationships between human learning and attempts to influence it which is the aim of teaching.

Educational psychologists should work with teachers in symbiotic systemic research on teaching attempting to relate practical teaching to principles of human learning. The focus should be on complex human learning. Teachers in training should be introduced to these principles as informing their practical teaching practice in schools and demonstrably helping them in their work.

A long standing program of teacher training that has adopted this approach is described and proposal made for involving British psychologists in general in teacher training.

RITUAL AND REALITY IN PSYCHOLOGY AND TEACHER EDUCATION

EDGAR STONES

Between the idea
And the reality
Between the motion
And the act
Falls the Shadow

T S Eliot, The Hollow Men

The shadows that fall between the ideas of educational psychology and the realities of practical teaching take various forms as shadows are apt to do. They are also difficult to pin down. Nevertheless, in this paper I shall attempt to examine the various manifestations of those peculiar to our discipline as well as some maladaptive rituals in teaching and teacher training. Although I do not suppose that I have much chance of dispelling the shadows in a short talk, I believe it is essential to make a start if any progress is to be made towards establishing the credibility of educational psychology as a helpful and benign influence in improving teaching.

Some earlier influences have been far from benign. Possibly the most detrimental was the involvement of educational psychology with the testing movement. Vernon's inaugural lecture was devoted almost entirely to the subject. He explained that the production of tests and the related procedures had become a well established and large scale manufacturing industry. [Vernon 1950]

I do not wish to dwell on problems related to this sorry episode in our recent history. They have been well rehearsed by others. The point I wish to make is that the operation of this large scale industry had little contact with the reality of children trying to learn and teachers trying to teach. The test constructors' involvement with schools mainly consisted in dropping off sets of trial versions of tests to be collected later for the really interesting and patently complex activities such as item analysis and calculating allowances for age and sex [to make sure not too many girls got to grammar school]. The classroom and children were distant and remote. Not surprisingly, Vernon concluded his lecture by saying that the judgment of a psychologist on educational problems '...is often no better or even poorer than that of the parent, the teacher or the administrator who may have consulted him.'

Unfortunately most teachers and administrators were not present at Vernon's lecture to hear his caveats. But it would have been difficult to avoid the products of the industry he described. Indeed, this version of educational psychology provided a theoretical justification for a divided system of education for at least two decades. Training institutions obliging provided courses in educational psychology which comprised mainly expositions of current views about the nature of intelligence and its testing.

The influences that brought about the paradoxical situation whereby work by people divorced from the reality of classroom life so profoundly affected teaching and the administration of education for so many years, are highly complex. I believe that those influences owed little if anything to psychology related to teaching and learning. The unravelling of the political, economic, and administrative forces at work at that time is a task worthy of the attention of a Leslie Hearnshaw. It would make a very instructive story with lessons for our own time. It might, indeed, provide insights into our present predicament.

One might reasonably conjecture that any psychological reasons for the flourishing of the test industry had more to do with the psychology of the psychologists than the psychology of learning and teaching. It is conventional wisdom that Education as a discipline ranks pretty low in the hierarchy of disciplines in Academe. Teaching probably ranks lower. Thus Vernon spoke for many of his peers when he said that: 'Educational Psychology is, in many respects, an advanced and highly technical form of applied science'. By so doing he laid claim to a level of academic status akin to that of medicine and made explicit the striving for peer acceptance that has been an abiding concern of our discipline.

This yearning for acceptance found its expression in many forms. The main strategy has been to adopt a form of protective coloration. The more educational psychology could resemble mainstream disciplines the better. This academic camouflage extended to the use of methods of teaching that were recognised by many psychologists in theoretical discussions as of doubtful efficacy. Content of courses in teacher education was similarly affected and many closely resembled mainline psychology courses, comprising, by and large, general psychology spread thin. Students were expected to make connections with practical teaching when they went into schools, either as students on teaching practice or as teachers some years after qualification.

Similarly, in places where test theory was discussed, warnings about the gross inadequacy of conventional approaches to testing coexisted with traditional end of course examinations. The three hour essay paper reigned and learned debate took place at examiners' meetings over such matters as the award of half a percentage point. The fact that psychologists wrote texts pointing out the shortcomings of these tests did not inhibit them from using them in their own examinations. I completed a year's secondment that included a large chunk of work in the field of test theory and construction, as you might guess, by sitting several three hour papers. Later, I was unsuccessful in persuading my colleagues in an educational psychology department to try other approaches to assessment. Colleges of teacher education with which I was associated at the time were similarly constrained and interesting alternative approaches to course assessment were dropped. [Checketts et al 1970] The argument against alternatives was entirely to do with peer recognition. Our reputation would suffer if we were to drop the time honoured approach to examining. When, as an external examiner, I suggested to a university department that the M Ed course consider other means of assessment, one of the psychologists present who is now an eminence gris in the field, reacted with shock horror. My suggestion that there was a certain inconsistency in arriving

at final degree marks by adding raw scores in essay questions in papers on methods of testing was met by similar impatience.

Course content took the form of incantatory hagiographies that I once described as 'gallops through the gurus'. [Stones 1980] With the waxing and waning of the year the rites unfolded. 'It must be March because we're doing Piaget.' 'If Skinner comes, can Freud be far behind?' There was rarely any contact with the reality of teaching. Student teachers were introduced to the delights of discovery learning through lectures. Most textbooks mirrored this approach. Lectures on paper; sometimes with accompanying exercises. The subjects dealt with changed somewhat but the genre survived. Packets of information about aspects of psychology for digestion and subsequent regurgitation.

The texts recommended by the Education Section [1987] are no exception.{1} I find there little other than a rehearsal of what various writers have had to say about a very wide variety of subjects. Pedagogy is occasionally mentioned but rarely discussed. Teaching gets a page or two. There are, however, some very impressive bibliographies. [A revised version of the paper omits the recommended texts.]

Psychopedagogy [Stones 1979a], which was graciously described by one participant at last year's conference as 'A brave [but failed] attempt', is entirely focused on pedagogy and teaching. In its pages I explicitly state that books are of limited value as teaching devices and explain why to the readers. I also state that the bibliography is limited in length since most of the basic psychological principles discussed could not be attributed to any one source but are agreed to be crucial for human learning and instruction by most workers in the field. However, I have to confess an element of ritual behaviour. The book was less selective than it might have been had I not thought it necessary to include some material to avoid disorienting readers too much by omitting it.

Psychopedagogy was based on many years experience in trying out psychological theory in real teaching and in the process establishing links between some key psychological constructs from the field of learning theories and the concerns of teachers. It was, therefore comforting in 1986 to read Noel Entwistle, in his riposte to David Hargreaves, suggesting that it was time work of this type was started. [Entwistle 1986] Taking his cue from Bloom's Alterable Variables he also thought that there may be ways of selecting a minimum set of concepts and theories designed for teaching, which should be selected for their pedagogic value as much as for the soundness of the research. My one regret in reading about Noel's conversion was that it took a guru from the USA to bring it about.

Extensive citation like the generating of lengthy bibliographies is another ritual activity aimed at acquiring academic respectability [and possibly avoiding responsibility]. The more densely the journal paper is peppered with citations the higher some perceive its status. I have never actually seen an attribution such as 'night follows day' [Eysenck 1973] but it's bound to come. Another status enhancer is the incomprehensible paper. As Armstrong showed some time ago, the more obfuscatory the prose the higher the prestige of the article when the

content is the same. He suggested that the purpose of writing papers is not to communicate but to impress. [Armstrong 1980] All too often the form of the scientific paper is the clincher: the content is all too frequently secondary. Impeccably produced trivia conforming to all the currently fashionable modes of data collection, analysis and presentation stand in for thought. The combination of SPSS, computers, and audio and video recording devices is exacerbating the situation. There is scope for an article on the subject of SPSS as a barrier to psychological research.

Educational psychologists have rarely attempted to test the theories they promulgate in the classroom. Some have, especially in the field of behavioural control, and I refer to these later. However, the main concern of most workers in teaching research, psychologists and others, has been to try to ascertain how 'good' teachers operate so that they might construct models of teaching that incorporate their methods. It is argued that if these methods of operating could be systematized they could be used as a guide to good practice.

Despite its popularity this approach has several shortcomings. I spelled out some of the main ones when I applied the expression 'Sitting with Nellie' to the apprenticeship approach to teacher training. [Stones and Morris 1972] It is inevitably conservative and operates against experiment and innovation. Logically it assumes that the universe of lessons sampled is exhaustive in that it includes all possible exemplars of 'good teaching'. It is the apotheosis of Nellie. The methods by which such phenomena as teaching styles were 'discovered' is an attempt to describe Nellie entirely in terms of her vital statistics. Juggling with figures and computer programs stands in for pedagogical analysis and action. How much thinking about the nature of human learning goes into these activities? How much learning would take place if teachers of all styles never arranged feedback for their pupils or attempted to teach concepts entirely through negative exemplars?

The argument for this kind of investigation is that if only we can pan out the nuggets from the dross we shall have 24 carat pedagogical gold. I suggest that investigations that wash through millions of teaching hours in the hope of bonanza have a big problem. The searchers might find fool's gold and not know it.

Another common problem is etiologically oriented research. Leontiev thought that American researchers were constantly trying to explain how the child came to be what he is now, whereas researchers in the USSR were trying to discover how he can become what he not yet is. [Sanders, 1981] I suspect that researchers in USSR have more in common with those in the USA than is suggested, but the point is well made. Current major research effort is going into looking at where teachers are now or where they came from and not much into where they could be going.

In view of all these difficulties it is not surprising that most authors of psychology texts end their liturgies with a potent spell aimed at exorcising evil critics. The exact form varies but two examples give the flavour. Of research in student personality: 'It still requires considerable faith and imagination to see where these results might lead'. [Entwistle 1975]

The other revealed: 'Clearly, there is ample credible work still to be done by educational psychologists. The more practical and relevant this work can be the better. ... But the time is overdue for us to convert more of this theory into practical outcomes'. [Child 1985] More formulations that ring the changes on these themes may be found in the recommended reading in the Section's paper. The contribution by Claxton [1985] looks rather lonely in its more analytical and astringent comments on the unsatisfactory nature of current approaches to teaching the subject.

The ritualistic exhortations to apply theory to practice resemble activities such as compulsive handwashing. Are psychologists washing their hands or wringing them? Perhaps a little hands-on activity trying out the theories in the reality of teaching would help ameliorate the condition.

Ritual in teacher training

Practical teaching as part of teacher training has its own mythologies. It is also the aspect of the course that abides as other fashions of course structure come and go. In the organization and rationale of teaching practice ancient methods of induction survive. Acquiring the skills of teaching resembles initiation rites appropriate to pre-literate societies and at times the regard in which the efficacy of teaching practice is held verges on the mystical. I am not referring merely to the present government's elevation of practice first enunciated in Teaching Quality and ubiquitously thereafter, but also in course structures in teaching institutions, perhaps particularly in PGCE courses, where in some institutions, teaching practice takes around 50% of the time available.

The block practice bestrides the year like an incubus smothering attempts to reconceptualise the course as a truly integrated unity with theory and practice a seamless garment. The long tradition of apprenticeship training has set up expectations in training institutions and schools that militate against change. It implies a conception of student in training as a surrogate teacher being inducted into the role osmotically.

The rites of block practice are complemented by the elaborate assessment ballet. The basic elements of the dance are the same, the choreography adopted by individual institutions differs as a function of the imagination of the production staff. The intricate interweaving of the steps of student, supervisor, external examiner, school heads and class teachers may have its aesthetic appeal but is of little value as an enhancer of the quality or quality control of teaching. The stylized manoeuvres of examiners' meetings echo those of the assessment of theory.

Quality is unaffected by this activity partly because of its post hoc nature, but also because it is pedagogically unfocussed. Quality control is unaffected since 98.5% of students completing

PGCE courses and 99.2% completing B Ed courses in Britain pass. If we take into account students re-taking teaching practice 99.6% PGCE and 99.84% B Ed students pass. [Stones and Webster 1984] Whatever justifying arguments might be advanced for retaining block practice they can hardly be sustained in support of assessment. It is difficult to avoid the conclusion that the continuation of current dominant modes of student teaching assessment is a ritual of doubtful value if the improvement of student teaching is the aim. Of course, it may well have a different implicit rationale more concerned with maintaining traditional power relationships and could be thus extremely functional.

Reality

What can now be said about the reality of the impact of educational psychology on teacher training? I believe it is not too strong a statement to assert that, despite the almost universal opinion that it should relate to practical teaching, as it is conventionally taught it has practically no impact at all. This is not only because it is disappearing from the curriculum of teacher training institutions, but more basically because, as it is currently conceived, logically and psychologically it cannot hope to have any influence on the acquisition of such a complex skill as teaching.

This follows because of the almost total lack of engagement of educational psychology with practical teaching in most courses and text books. Information about educational psychology gleaned from those sources by students is inert knowledge, apprehended only at a superficial verbal level. In many cases it is also totally irrelevant to the concerns of practical teaching and forever unknowable by students. It demands a great feat of the imagination, for example, to envisage the circumstances in which teachers in their daily rounds would draw on such things as their 'knowledge' of the hypothalamus or the different views of the relationship between physique and personality, or, indeed, a large proportion of the content of many texts that provide potted accounts of varying views about a wide range of psychological issues. In Vigotsky's graphic phrase, all too often the words cover a conceptual vacuum. In view of the wide agreement in our trade about the essentiality of experience in complex concept learning and skill learning, the foredoomed failure of such approaches to the teaching of student teachers is inexplicable without some consideration of the ritual activity I have discussed earlier.

I realise that some workers have ventured into the classroom. The micro-teaching boom stands testimony to that. Behaviour modification techniques for control, radio assisted practice, and the analysis of verbal and non-verbal teacher behaviour have all made contributions. Descriptions of hundreds and thousands of hours of teaching have been observed and recorded in the search for the pedagogical grail. However, the weakness of much of this work is that it lacks any theoretical underpinnings. In the case of micro-teaching, The original specific skills owed more to coffee table chat than to pedagogical

analysis and the skills, as a whole, were uncoordinated with no unifying principles. In no time at all, micro-teaching was equated with small groups and video-recording. Psychology was not present in the supervisory interviews. Some recent British work using behavioural approaches is based on theoretical constructs from psychology. However, I believe that the main thrust of this work still falls short of what is needed.

Wheldall and Merrett [1987] make this explicit. They say that their aim is to encourage the kind of pupil behaviour '... that teachers consider to be most appropriate for effective learning to take place. What should be taught and in what order and how it should be taught are decisions for teachers to make as expert and professional educationists.' [My italics]

This position resembles that adopted by Vernon and by Bernbaum, who was cited as an authority for his chapter on psychology in initial teacher training in one of the books recommended in the Section's paper. This raises some very serious questions. If educational psychologists in general accept it, it is difficult to see how they can be 'perfectly poised to make a major contribution to the education of all our children' as is claimed in the paper. It also contradicts the argument in the paper that tutors in teacher training should have psychological training because classroom experience cannot provide a theoretical basis for teaching. This is odd since one of the signatories of the paper is one of those who considered that decisions about how to organize pupil learning experiences should be the province of teachers not educational psychologists. If teachers do not have a grasp of general principles based on educational psychology and psychologists have, why should psychologists be so coy about having opinions about how to teach? As far as I can see, the two positions can only co-exist if educational psychology is regarded as an academic discipline unconnected with teaching.

Consider, also, the nature and place of teaching practice in teacher training. Its most striking aspect is the persistence of the apprenticeship method of learning to teach. This practice is of very ancient lineage as compared with the systematic study of human behaviour. Thus, many vested interests are embodied in the institutional, administrative, and political structures and procedures which determine the nature of the practical teaching element in teacher education courses. Psychology, on the other hand, when taught as it usually is, as an academic subject, is, naturally enough, seen as just one of many nouveaux arrives jostling for position in the time that remains after teaching practice has taken its slice. It is merely one 'subject' to be taught alongside other foundation disciplines, professional studies, or whatever current fashion decrees. It is not surprising, then, that like some of the other 'foundation disciplines' it is practically disappearing from the curriculum of teacher training institutions. [Dearden 1985]

Educational psychologists involved in teacher training can hardly complain about this state of affairs. Having danced to the music of Academe so assiduously and for so long, they are ill placed to join in the more robust routines of teaching practice, and still less, to change the steps. The striving for academic respectability and the distancing of the subject from

practical concerns of teachers has proved politically inept as well as a dereliction of duty.

Practical teaching

Educational psychology will only make an impact on teaching and teacher training when those who profess it become seriously involved in problems of practical teaching at all levels. This cannot happen until they leave the groves of Academe and change the nature of their offerings to teachers and student teachers. In teacher training institutions this means making a commitment to teaching practice. In INSET activity it implies relating courses involving a psychological component to teachers' practical experience, whether in the training institutions or in the teachers' own schools. I believe that the past neglect of practical teaching by psychologists is really inexcusable. One would have expected those who profess an expertise in the field of human learning to have made some practical contribution to understanding and improving the complex skill that aims systematically to bring about learning in the young. Instead, they have kept teaching practice at arm's length. Rather than clutching educational psychology to our bosoms, we need to explore different ways of bringing psychology into teacher education than have been the staple in the past. I should now like to discuss ways in which educational psychology might make a genuine contribution to the theory and practice of teaching and teacher education.

Practice teaching, where psychology could make a key contribution suffers from a serious problem that is crying out for the attention of psychologists. Not in detached scholarly examinations, but in practical involvement aimed to change it. I have in mind that training institutions regard teaching practice as an homogeneous phenomenon not needing explication. All other aspects of teacher training courses spell out some form of curriculum content. Descriptions of teaching practice, however, confine themselves to giving an indication of the time devoted to it and the times it will occur. This one rubric covers a multitude of disparate experiences. It assumes a simplistic view of teaching with little complexity, a view which is shared by many colleagues in higher education and expressed in Shaw's gibe: 'Those who can, do. Those who can't, teach'. [Is this the reason psychologists have shied away from teaching teachers to teach?!] By default most educational psychologists have yielded this ground, the apprenticeship system is still inviolate and little attempt has been made at a psychological analysis of the task of teaching and the way in which it relates to practice teaching in teacher training.

This abdication has been enormously damaging to teaching and to the status of educational psychology in the eyes of practitioners. And yet it is not difficult to make some valuable points that could shed light on current practice. At the crudest level of analysis we can see that the false homogeneity assumed in the rubric 'Teaching practice' is a barrier to effective learning by most student teachers. Apart from any shortcomings of the apprenticeship system, it is clear that those students unlucky enough to be paired with indifferent or poor

practitioners, are in no position to learn good teaching. The chances are fairly high that students will have this experience if the surveys by HMI and the ILEA inspectors are anything to go by. [HMI reports passim, Hargreaves 1988]

There is, however, a more fundamentally psychological problem inherent in current approaches to practice teaching that has scarcely been addressed. I refer to the problem of learning complex psychomotor skills by imitation. Simple motor skills may be imitated with ease by most people. General attitudinal behaviour may also be acquired by imitation. However, the situation is very different in the case of more complex skills and more subtle attitudinal learning. One may learn some of the elements of riding a bicycle by imitation, where to sit, and how to hold on, for example. It is very much more difficult to imitate the finer movements of control and balance that lead to skilled performance. It may, indeed, be impossible to do so. The smooth economical performance of an expert practitioner is the product of considerable practice that has so refined the activity that the stages on the road to mastery are not detectable and are, therefore, inaccessible to imitation. This has been recognized by some sports scientists who are sceptical of the efficacy of show and tell approaches to training.

At a recent seminar of researchers into teaching [ESRC, 1988], one paper reported a finding that illustrates the problems of communicating the expertise of skilled practitioners to others. The authors reported that experienced teachers in their investigations could not explain their thought processes in relation to the judgments they made about classroom situations and pupils. I suggest that this finding may be of the same type as the one I referred to in the case of bicycle riding. The smooth integration of the elements of the skill render them inaccessible even to the practitioners. Ausubel's elegant phrase 'obliterative subsumption' naturally springs to mind here. I venture to opine, however, that if the teachers had known something of the theory related to human learning and social interaction and had been working with such ideas in mind they would probably have been better able to explicate the nature of their actions and mental processes.

In view of the problems inherent in learning by imitation, methods of skill training have been developed involving an analysis of the skill to be taught to reveal its constituent sub-skills together with approaches to training that make use of such things as simulation, graded practice, and careful arrangement of feedback. Teaching, it would probably be generally agreed, is a more complex activity than riding a bicycle. And yet little has been done to attempt such analyses and related procedures in teaching students to teach.

Analyses for action

The tacit espousal of the academic position has been the cause of the perennial soul searching about the contribution of educational psychology to teaching. When even task

analysis is presented as a statement of the views of writers on the subject rather than being incorporated into action in teaching, one wonders whether the ensuing paralyzed immobility indicates more a lack of confidence in our nostrums than a desire for scientific detachment. I suggest that we show more confidence in our discipline than is implied by those who disclaim its possible contribution or skirt round the question, and more circumspection than is implicit in the claim that we are 'perfectly poised' now to make such a contribution.

As I have argued, the place to start making an impact is in the practical teaching element in teacher training. We could do worse than start with an analysis of its assumptions. We might argue that since teacher training courses rarely provide any theoretical orientation for practice teaching, the assumption must be either that there is no pedagogical theory worth teaching, or that students will acquire it 'on the job'. We might then ask if is it logical or realistic to expect students to acquire a body of pedagogical principles of general application in this way. I suggest it is not realistic. Further, if it were realistic, we might look askance at a training that leaves its graduates to learn their professional theory entirely by induction from practice after graduation.

I have already commented on the perils of this approach to learning teaching skills. It may present another kind of difficulty. So long as teaching practice is regarded by teacher educators as a homogeneous phenomenon, and so long as teaching theory is to be learned inductively through practical teaching, so long will the processes of teaching and learning to teach be inaccessible to us.

The consequences of taking this view of teaching were exemplified at the seminar I referred to earlier. One contributor, who was genuinely seeking an explanation, posed the question: 'How are experienced teachers able to respond to particular situations adequately while neophytes cannot?'

I suggested the answer might be found in theory related to concept learning. At the time I felt that this comment was not really understood or accepted and this came out clearly in small group discussion. I followed up with a post hoc written statement that set out how I saw the answer to the question. It seemed to me that one could set out the rationale in terms from notions about concept learning. This I did as a series of propositions. The statement is not likely to be accepted as definitive, nor was it intended to be. The important point is that it demonstrates that educational psychology has a lot to offer in the analysis of teaching, and, more important still, in helping to improve it. The latter follows, since, if the generally accepted processes of concept learning can be related to teaching, the road is open to manipulating the variables to improve the speed and quality of the learning.

The statement goes as follows:

1 No two teaching situations are identical.

2 If teachers store up their teaching experiences somewhere, as was suggested in discussion, they must either store discrete entities corresponding to each teaching encounter, or classify the experiences some way in categories relating to teaching situations of similar types. Many participants in the discussion referred to above, seemed to espouse the atomistic view.

3 If experiences are stored as discrete entities, and if all teaching encounters are unique, it is logically impossible to find a stored experience identical to the current teaching situation. Retrieving any one of the stored experiences would not replicate the new situation and could not be fully relevant to it. Problem, which experience would be retrieved from the atomistic store by a teacher trying to find a match for the current situation?

4 If experiences are classified, some process of abstraction is essential if the different experiences are to be perceived as belonging to the same class. Faced with a teaching encounter, the teacher identifies the class to which it belongs, retrieves the class of experiences and draws on those elements that seem appropriate to the particular [and inevitably, novel] situation.

5 If experiences are stored atomistically the only way students can acquire a veteran's expertise is by having the identical life experiences.

6 If experiences are classified by a process of abstraction, the essential elements of that class of experience are available for use in a variety of specific teaching situations included in the class. The essential elements are the criterial attributes of concepts or principles related to teaching. Their essentiality has been determined by the teacher in relation to the teacher's cognitions and experiences.

7 If the teachers' cognitions include a knowledge of the psychology of human learning they will be equipped to examine their own thought processes more effectively and make them accessible to others. Students could then be introduced to the general principles related to classes of teaching situations without having to relive the experiences of 'expert' teachers.

8 Skilled teacher educators will do their best to structure student teachers' learning experiences so as to expedite their learning of pedagogical principles. The knowledge and use of those principles to inform the teaching of student teachers, teacher educators and experienced teachers will facilitate pedagogically oriented communication among the three parties. I assume here, that teacher educators and student teachers, themselves, as well as teachers, have useful and relevant knowledge that can enhance teaching.

9 Most of these propositions spring from notions of concept learning and there is an

extensive literature on the subject, although, I regret, not much in relating it to teaching.

The point of presenting this analysis was to suggest that teaching, although enormously complex, is not inherently a mysterious process. I think this is a very important point. There is no doubt that practically all the group of these researchers in the field of teaching were quite baffled and unable to attempt an answer to the question posed by the speaker. The propositions obviously do not answer the question but they indicate that, even with our existing knowledge base, it is possible to bring to bear psychological principles at least to provide a means of attacking the problem and at best to guide teaching and student teaching.

This kind of analysis, despite its primitive nature, also gives an indication of the complexity of teaching and the magnitude of the task facing those wishing to improve our understanding of it. Not only does it give the lie to the Shavian lampoon, it should also encourage those in training institutions who have sought academic respectability in other fields to think again about teaching as a field worthy of attention. The intellectual demands involved in understanding the complexity of human learning and improving it, are at least as great as they are in any other of the currently more prestigious disciplines. I suggest it is the task of educational psychologists to convince the rest of the academic community that this last proposition is true.

We might make a start by reminding ourselves that the activity that particularly interests our peers in other disciplines, is solving problems. We might also entertain the proposition that solving pedagogical problems is a specific example of this general case and should be the key activity in all fields of teaching. We might, further, recollect that psychology is, par excellence, the discipline that includes the study of problem solving as one of its important concerns. We should, then, reflect on how little attention has been given to the solving of pedagogical problems. This neglect presumably follows from the fact that many psychologists and practically everybody else look upon teaching as non-problematic. All the more reason, I suggest, for making the exploration of ways of solving pedagogical problems the central concern of anyone professing educational psychology in relation to teaching and teacher training.

This is not to suggest that other aspects of psychology are to be ignored. Progress in finding ways of solving pedagogical problems is unlikely to be achieved without considering a variety of cognate subjects in the affective, motor and cognitive domains.

I would, therefore, want to make the solving of pedagogical problems in the context of real teaching the central concern of educational psychology. In the field of teacher training the work involves several layers of extremely complicated activity. The first level involves tutors of student teachers in confronting the problem of teaching student teachers to solve their

pedagogical problems in teaching their pupils. The student teachers' problem is teaching their pupils to solve problems in different fields of study and in their own lives. The pupils' problems are those presented by the teacher and those encountered in their day to day lives.

Thus, teaching and learning both have solving problems as a focus. In all cases the learners at whatever level, including tutors, are actively engaged in bringing to bear their learned abilities to cope with novel complexities in their environment. To tutors, each cohort of students presents new challenges, comprising as it does different individuals with different backgrounds, interests and subject specialties. The unifying factor in each disparate group is the study and practice of teaching.

The simple way for the tutor to deal with the problem is to give lectures or seminars on the themes of teaching or educational psychology or method. However, tutors wishing to make progress towards solving their pedagogical problems will need to bring to bear their knowledge of teaching, of students, of various subject matter together with their understanding of the key elements in psychology likely to help them in their attack on problems. This form of activity is particularly difficult for tutors since guidance and assistance is hard to come by as things are at present. However, bootstrap operations will be facilitated by a knowledge of educational psychology and the willingness to experiment using principles of human learning in relation to the induction of student teachers.

Leaner and fitter

If we are to focus on those aspects of educational psychology that are of direct concern to practical teaching, we have no alternative but to jettison much of what has traditionally constituted the corpus of courses in teacher training. This hard decision does not follow merely from the fact that the amount of time available demands it. There is also the not inconsiderable difficulty of deciding among the varied offerings in different institutions all under the rubric of Educational Psychology. This difficulty was interestingly exemplified by Herbert and Williams [1969] who found that a husband and wife taking educational psychology at the same institution were in no danger of talking shop at home since the content of the two courses had nothing in common. These are all compelling reasons for exercising stringent selectivity, but the most compelling and serious point is that it is difficult, if not impossible, to demonstrate the relevance to actual teaching of much of the content of existing courses, however valuable it might be for 'personal development'.

A focus on human learning seems to cope with the problem of 'relevance'. But even in attenuated form, it almost certainly does not cope with the problem of the little time currently available. I will return to this difficulty later with some suggestions about ways of tackling it. However, a pared down approach to educational psychology need not be narrowly partisan. We need to take a pluralistic approach. Whatever offers hope of

contributing to improving teaching is grist to the mill. The acid test is the extent to which the ideas can improve teaching and student teaching.

I am not suggesting making a collection of disparate modes of operating. I look for approaches that are not mutually exclusive and I believe that the connections between the different approaches should be explored in a spirit of constructive debate. To give an example, while I am impressed by the EDY approach, I think its behavioural purity has led it to use methods of teaching teachers that are inappropriate. A somewhat different example may be drawn from work on classroom control. This seems to me to be so obviously related to other aspects of the teacher's task that it limits its value if it does not take them into account. Peer dialogue in gatherings such as this could help to clarify such issues, resolve contradictions, and perhaps even lead to some sort of agreement on what are the essential elements from psychology that can make a genuine contribution in teacher training. The Section's paper on initial teacher training and the 'Open Dialogues' in the Bulletin are very welcome developments that I hope will continue in an open ended debate. I also hope that this paper will be taken as a contribution to that debate.

Proving the pudding

The proof, in its original sense of test, of the relevance of constructs from psychology to practical teaching must be in practice itself. However, I do not think that this testing can be done using typical single shot investigations conducted by researchers on three year soft money, no matter how sophisticated in conventional experimental design and in the use of statistics. Explorations in theory-informed practice has a commitment to long term development and implies a research paradigm that will never eventuate in a 'final report'. It also implies the involvement of teachers in genuine participatory investigation in which they play an indispensable part. On this view research and development in teaching are inseparable since theory and practice are linked dialectically. A-practical theorizing, even when based on field collected data is insufficient as is a-theoretical craft knowledge which is basically non-reflective [Carr 1984].

A key corollary of this view of teaching is that instead of conforming to stereotype, as a process of transmitting knowledge, or, more fashionably, of delivering the curriculum, it should more resemble an investigatory pedagogy. In an earlier paper [Stones 1986a], I referred to this approach as systemic research . That is, research on teaching should be organic to teaching, within the system itself, not conducted by an outside agency scrutinizing it with an illusorily aseptic eye, as prevailing current ritual would have it. However, I am not totally opposed to outside funding of research. In today's entrepreneurial Utopia where amount of outside funding is the key performance indicator, it would be foolish totally to opt out of the game. Nor am I suggesting a cosy exclusive club of practitioners, as I explain below.

A research related pedagogy should act as a link between the conceptual structure of the subject matter of the teaching and the theoretical principles informing the teaching. Psychology should be able to make an important contribution in this field in view of the considerable work done by psychologists on concepts and concept learning. We should not necessarily defer to the expert knowledge of subject specialists, but subject their approaches to pedagogical and psychological analysis and not demur from making suggestions for improvement.

In fact, in my experience, many subject specialists in teacher training are very open to suggestions and welcome discussion about systematic pedagogy. They may be difficult to convince, but this is the reality of the current situation that has to be faced. This may be said even more forcibly about teacher involvement. One thing we have learned over recent years is that innovation is teacher dependent. If it isn't bred in the bone, it won't take. However, my experience with very many teachers of all subjects and at all stages in their careers, is very encouraging indeed. When teachers through their own efforts and in their own teaching are able to make use of ideas from psychology to guide their actions, they have responded with considerable enthusiasm.

But, here, I must raise one further fundamental issue. Most writers in the Section's recommended reading talk about applying research findings to teaching. The cast of mind that leads to such conceptualizations of theory and practice is one that, if adhered to, will effectively block any rapprochement between psychology and teaching. It bespeaks an arrogant certitude about the status of psychological theory that does us no good. It also bespeaks a simplistic attitude to the interaction between theory and practice. In the human sciences it is quite inappropriate. If it is adhered to teachers are reduced to puppets learning how to put our theory into practice. Research on teaching must involve the practitioner-researcher and the theorist-researcher in collaborative activity in which a tentative theory and a tentative practice are dialectically related and mutually enriching.

A Pedagogical College

In attempting to put these ideas into operation I took the view that all participants in the enterprise of teacher training and staff development have something to learn. Thus the aim has always been to develop an interactive network of discussion and practical activity with the stress on collegiality despite the difficulties of developing that kind of ambience within the structures of British formal education. In order to illustrate the approach I will now discuss briefly the basic elements of courses to which I have made a contribution.

Participants in the courses have comprised a very wide range of students and teachers on INSET. This makes for a rich and fertile heterogeneity. All are involved in teaching at

various levels and all have different backgrounds and interests. The common concern is the study of the theory and practice of teaching, which, therefore, provides the focus of activity in dyadic and group work. I have described this work in detail elsewhere so will confine my remarks here to some of its salient points.

The group work takes various forms. It may comprise just the student teachers, or just the experienced teachers on a supervisor training course, or a mix, and will sometimes include co-operating teachers from the schools and any visitors who might be interested. In the school it comprises the teachers who have elected to join the programme and the headteacher. In all cases, however, the psychological input provides the unifying theoretical element in relation to discussions about specific examples of practical teaching. Dyadic work involves counselling interviews between trainee supervisors and student teachers.

The nature of the psychological input is based on a view of learning and teaching that sees theory and practice as elements in a unity. [Stones and Anderson 1972, Stones 1979 a, b] The aim of the input is to help the learner to develop problem solving skills appropriate to the target task, which, in the case of student teachers, is effective teaching informed by a theoretical pedagogy. Student learning is seen as comprising three general stages. The first stage is the acquisition of a body of concepts and principles relating to the subject of study. In the case of student teachers, the body of knowledge to be learned is those aspects of educational psychology that seem directly to contribute to an understanding of teaching. The second stage picks up the idea of protocol usage as enunciated by B O Smith [1969] and discussed by Gliessman [1972] The third stage is the implementation of the target skill. In the case of student teachers, this involves teaching something to someone in the light of learned pedagogical theory.

Evidence of student learning is provided by their demonstrating competence in three types of linked skills. I will exemplify by reference to learning to teach but I think the approach is of general application. The least complex skill [type C] is the ability to explain how specific pedagogical principles may be applied to a practical teaching task. The second skill [type B] involves the evaluation of a piece of teaching in the light of pedagogical principles. The third skill [type A] involves the students' using the pedagogical principles in actual teaching. It is important when assessing competence in these skills to guard against rote learning. This can be done by ensuring that at each stage transfer of learning is observed by presenting novel conditions for the exercise of the skill. This is, perhaps, particularly important at the level of concept and principle learning in view of the venerable tradition of pencil and paper tests where words previously dispensed in lectures are regurgitated after minimum processing by the examinee.

To avoid vacuous learning the teaching must have solid foundations. Therefore, even at the earliest stage, students must be introduced to practical teaching. But not just to look blindly. The skill of the tutor is in introducing examples of teaching related to the theoretical principles under discussion. Much can be accomplished at this stage through the use of video recordings, but these should be backed up with observation of actual teaching to

provide a more fundamental grasp of the body of principles being learned. The tutor uses ideas from psychology of learning to teach the students the same ideas.

The use of protocols provides the basis for the development of a crucial ability in teaching: the ability to reflect on one's own performance and to plan ways of improving it. A protocol, in this sense, is an example of the execution of the skill being taught, presented to the learners for appraisal in the light of theory. The example may be an actual performance of the skill or a record of the performance through media such as video-recording or audio-recording, or possibly, printed records. The essential thing is that the recording should be faithfully replicate the original performance with no interference from the tutor. Student teachers examine protocols of teaching analytically and evaluate the way teachers make use of theoretical principles in their teaching. In the process of making the assessment, they acquire a deeper insight into their grasp of the principles.

The acid test of the theory the student teachers have been learning is in their practice [type A skill]. This is the practical element in the course, replacing the current apprenticeship approach. In the case of experienced teachers learning psychopedagogy, the work could be in their own schools. The teaching could take a variety of forms: sometimes peer teaching, sometimes individual tuition, sometimes small group work, sometimes whole class teaching. Supervisor training is taken to be teaching by the course tutor. Supervision of student teachers is taken to be a form of individual tuition that draws on some ideas from counselling psychology but with a pedagogical rather than therapeutic orientation.

The connecting links between constructs from psychology and practical teaching are provided by heuristic guides. These are short schedules that were developed as aides memoire in my work with teachers. The schedules remind teachers of the things that are useful to bear in mind in planning, executing and appraising teaching. They comprise guides for concept teaching, for teaching motor skills, for problem solving and for planing reinforcement. For the teachers learning to become student teacher supervisors or to work in teacher staff development, there is a guide aimed to enhance supervision. In addition, there is a suggested framework for a task analysis that provides a framework for the guides. [Stones 1979a, 1984b]

Although they look rather like schedules used for teacher assessment, they are, in fact, more or less the opposite. Unlike such schedules they are theory dependent rather than ad hoc, pro-active rather than post hoc, heuristic rather than prescriptive and to be used by teachers instead of against them.

It is crucial to bear in mind the context of the guides. They cannot be picked off a shelf and used by anyone lacking a firm grasp of the psychological principles they embody. However, students' understanding of the processes involved can be nurtured by group work which uses the guides or aspects of them as anchor points for discussion. The use of protocols and guides in the work of heterogeneous groups I referred to earlier, provides a very stimulating learning environment with a firm focus on deep theoretical structures of

learning and teaching rather than on superficial matters that might otherwise constitute the discussion.

As the course proceeds and students become involved in practical teaching we are able to use their own practical experience as protocol material. Video-recordings of individual students' teaching are viewed by the group and discussed in the light of theory. This can be a stressful experience for the individual which I lead up to by using video-recording ubiquitously throughout the course so that we all become familiar with seeing ourselves in discussion on tape. The stress does, in fact, diminish, so that participants become able to objectify the experience and to discuss their own teaching with the rest of the group reasonably dispassionately.

It is worth examining this learning group quite carefully. What is happening here is that one person is being viewed teaching a group of children in the presence of peers, of the course tutor, and possibly a small number of experienced teachers too. The whole group is using the recording as a protocol which they appraise analytically drawing on constructs from psychology. These constructs provide the common realm of discourse for the group. As a result of the pedagogical analysis, the group are then able to counsel the person on screen on his or her teaching suggesting ways in which the teaching might be improved. The person on screen is using the recording as a protocol in the same way but with the added element of reflexivity. This student is acquiring the tools of self appraisal, all are learning something about collegial counselling.

The course tutor can add an additional element. One counsels the student teacher in the group session and this is recorded. The students are then able to appraise the tutor's counselling and refer to specific aspects by re-running the tape. They are now using the tutor's counselling as a protocol of a different kind of teaching, but they still have to draw on the same body of psychopedagogical constructs. One of the teachers on the supervisor training course built on this aspect of the discussions in a very productive way. He had student teachers counselling each other in dyadic situations in the same way as teaching practice supervisors might discuss a student teacher's lesson after observation. A particularly interesting and important element in this work was that the student supervisors commonly counselled colleagues from different subject fields and age range of pupils, thus emphasising generic pedagogical skills not subject specific matters.

As can be seen, the picture is very complex. It gets even more complex on the supervisor training course, when the course tutor counsels the trainee counsellors on their counselling of student teachers. Nevertheless, the bedrock of all this activity is the psychological constructs and the practical teaching at the various levels.

I suggested earlier that teaching should be the subject ~par excellence~ in which research and teaching complement each other. I also argued that one off snapshots of the way things are now are of little value, especially when their outcomes are assessed on statistical grounds rather than pedagogical. In the work I reported above, every participant is in the

position of a researcher. If every piece of teaching is regarded as a problem in pedagogy to be tackled systematically, the experience of planning, carrying out and evaluating the teaching is a miniature research project. In fact, the assessed work of the PGCE students and the experienced teachers on INSET comprised reports of teaching treated as empirical investigations, and presented in the general form of journal papers. They typically comprised literature reviews related to the subject being taught, an account of the planning and execution of the teaching and an analytical appraisal of the teaching and its outcomes in terms of pupils' learning and discussion of the relevance of the outcomes for future teaching.

Clearly one would not wish to make pretentious claims for limited short term investigations. However, the work of many of the experienced teachers has made interesting contributions to understanding of teaching. Given current attitudes towards acceptable research paradigms, however, work of this type may cut little ice with some researchers. But attitudes are changing and this type of investigation is very much in line with the hermeneutic and critical paradigms which are attracting increasing support [Carr and Kemmis, 1986], even, although to a limited extent, among pyschologists. Thus, it seems to me that work of this type by practising teachers is more likely to influence the development of teaching and pedagogy and draw both closer to educational psychology than any block busting research projects which may be nine day wonders but make no lasting impact.

The attitudes of student teachers and experienced teachers to work such I have described, lends credibility to this view. Experienced teachers are quicker to see the value of a systematic psychologically based approach to teaching, and many become very enthusiastic about it. Student teachers are somewhat slower to respond. Their resistance may be reasonably summed up as a sceptical questioning of the need to take all this trouble. After all, teaching is a simple, straightforward business. It is gratifying to report that this attitude changes as the students go through the course and the thing that convinces them is their experience of teaching. However, the change would not have taken place merely by teaching. Without the theoretical input it almost certain that most of them would never question the current conventions of a-theoretical teaching. The analytical tools provided by their experiences in seminars and through their reading enabled them to recognize and understand the strengths and weaknesses of their teaching and to give them some idea how to make best use of their self appraisal.

Problems

The conceptual and pedagogical difficulties of implementing the kind of teacher education I have been describing are substantial. Looking at episodes of teaching *in vivo* and on tape and analysing them in terms of psychological moves, is a formidable task that takes much preparation and expenditure of time. Even the preactive analyses and subsequent

evaluation of teaching is most demanding. However, the work is extremely stimulating and rewarding and as much of a challenge as any work in any other field. The same cannot be said about the other kinds of problem which relate to institutional structures, vested professional interests, and funding policy that is forcing intellectual content out of teaching and reinforcing its mindless craft image.

But perhaps as Cassius said: 'The fault, dear Brutus, is not in our stars, But in ourselves'. If educational psychologists in general had actually worked with teachers and demonstrated the central relevance of their discipline instead of bleating about it and averting their gaze from work that was tackling the problem, the chances are that the discipline would be in better shape today.

The situation does not seem good. In a straw poll of training institutions I carried out just recently, I found that educational psychology had little place in courses. Time allocated was derisory. In most places where it still survives it is dealt with by tutors in general seminars. There is little evidence of any attempt to relate it to teaching. One return actually entered 'not applicable' in the section of the questionnaire that asked if attempts were made to relate educational psychology to practical teaching. In this context, I suggest there should be a serious reappraisal of the recommendation of this Section that psychology should be taught only by people eligible for BPS membership.

I don't think I'm a pessimist, but the picture does look gloomy to anyone genuinely interested in integrating psychological theory and practical teaching. For those that are interested, let us consider how we might proceed. First we must face reality and understand that the road to academic respectability most people trod looking for peer recognition was a blind alley. We are now faced with a major task of re-education of staff of training institutions and their paymasters. Second, we have to take into account that psychologists in training institutions are thinner on the ground than for many years. Third, we must accept the fact that any moves towards rehabilitation are bound to be small and slow for some time.

I suggest that psychologists still working in training institutions should become centrally involved with practical teaching. Since it is clearly impossible to staff the whole show with members of BPS, means will have to be devised to bring about some form of multiplier effect. This might be achieved by working with subject tutors responsible for teaching practice. Many of the teachers working with me on INSET courses have included such training institution tutors and their reactions have been extremely positive. The role of the psychologist here is to work with the tutor in a joint exploration of the contribution psychology can make to improving the teaching of the tutor's subject. The aim is for subject tutors to become sufficiently familiar with the essential psychopedagogical principles and related skills to be able to use the approach with students for whom they have responsibility. Collaboration with colleages from other foundation disciplines, also focussing on practical teaching would enrich the work considerably.

What I am talking about here, obviously, is a form of collegial supervisor training. In view of the lack of attention that has been paid to this subject, anyone venturing into this field will have to start with a bootstrap operation. I have discussed the problems and possibilities of such work in detail [Stones 1984b, 1986b]. I provided information of case study material that I hoped would be of use to interested tutors. Supervisors of student teaching are the key people in working with student teachers. When I described work of this kind and showed examples of supervisory interviews to a conference on supervision for teacher trainers, they were enthusiastic. However, one participant asked the sixty-four dollar question: 'Why, since this approach is so obviously reasonable and effective, is it being ignored'. I could have asked a similar question about educational psychologists.

Despite the strait-jacket of ritual teacher training procedures implicit in the question posed, there is interest among staff of training institutions. They are best placed to mediate theory and practice. They are also of central importance in training courses and have the added advantage that they are likely to be around a long time. They could be the most helpful allies in producing a rapprochement between psychology and teaching.

I believe that work of this kind will enable the ideas from psychology that genuinely do relate to teaching, to permeate practical teaching in the training institutions. The same ideas are relevant for work with experienced teachers either in institutions or in schools. I suggest that we should also be paying particular attention to working with LEAs in their INSET programmes. Inputs that promise real help in teaching will be welcomed and could provide opportunities for the rehabilitation of educational psychology in teaching. The point to be emphasized and re-emphasized is that these ideas are not for 'delivery' but for examination. All those involved have something to contribute. Those contributions should cumulate in a process of organic growth of pedagogy that becomes increasingly useful to teachers at the same time as it becomes a more satisfying theory for psychologists.

For my part, I am interested in testing this approach to destruction. So far my collaborators have come from nursery schools, infant, primary and secondary schools, various F E courses, P E specialist courses, PGCE, B Ed, M Ed, Ph D and some work with training in industry and commerce. Currently I am working with Ph D students introducing staff development along these lines in schools of which they are heads. In one case the student is head of a large special school, in another the student is the head of a small residential school for maladjusted children. The work is entirely school based and has to establish its credentials in the harsh reality of the currently demoralized profession. In these schools questions of institutional change will also be of major importance and it will be interesting to see what we can learn from the interaction of the pedagogy and the social psychology of the schools.

In conclusion, I should like to return to T S Eliot who said in another place: 'Humankind cannot bear very much reality'. Is this why educational psychologists distanced themselves from practical teaching? Or was Proust's comment more to the point when he said: 'All the mind's activity is easy if it is not subject to reality'? Perhaps it is both. Whatever the

answer, I submit that there is no future for educational psychology in teacher education until ritual is replaced by a realistic engagement with practical teaching.

Note

1 After this paper had been given, I was provided with a revised version of the Education Section's paper ~Psychology and initial teacher training~, which, while substantially the same as the version I refer to, includes material I had not seen before. Some of this material addresses the issues I refer to in the paper, sometimes in critical vein, and I welcome the clarification which is broadly in line with my comments.

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